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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/609,400

07/01/2003

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EXAMINER

LUND, JEFFRIE ROBERT

ART UNIT

PAPER NUMBER

1763

MAIL DATE

DELIVERY MODE

07/12/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/609,400	Applicant(s) KIM, CHANG NAM	
	Examiner Jeffrie R. Lund	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --.

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8,10-15,17 and 19-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,8,10-15,17 and 19-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 5, 6, 8, and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Magdo et al, US Patent 4,256,532.

Magdo et al teaches a mask for depositing a material on a substrate having: a first substrate 22 on which a plurality of masks 10 are formed, each mask 10 has a plurality of first via holes 14, which define deposition areas on the substrate, and a thickness of 1-5 μ m; and a second substrate 11 with a plurality of via holes 13 and thickness of 125-375 μ m. The via holes are rectangular and overlap each other. The second via holes are larger than the first via holes. A bridge is formed on the first substrate between adjacent masks 10 and across the second via hole. Figures 5, 6A, and 6B clearly show the first via holes defining deposition areas on the substrate 53, 60 on which material 58, 68 is deposited. (Entire document, specifically, Figure 1, 1A, 5, 6A, and 6B)

Magdo et al differs from the present invention in that Magdo et al does not teach that each mask has a single via 14, the size of the first and second via, or depositing a layer on a flat display.

The specific pattern (i.e. shape, size, and number of via holes in the mask)

formed in the mask is an intended use of the mask, and it is prima facie obvious to form the desired pattern in the mask to deposit the desired pattern on the substrate.

The motivation for replacing the plurality of via holes 14 in the each of the masks 10 of Magdo et al with a single via hole 14 in each of the masks 10 of Magdo et al is to use the plurality of masks 10 of Magdo et al to deposit a single element per mask as opposed to depositing a plurality of elements per mask. Furthermore, it has been held that:

- a. A change in shape is a matter of choice which a person of ordinary skill in the art would have found obvious. (See *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966) MPEP 2144.04.IV.B)
- b. Omission of an element with a corresponding omission of function is within the level of ordinary skill. (See *In re Wilson* 153 USPQ 740; *In re Larson* 144 USPQ 347; *In re Karlson* 136 USPQ 184; *In re Portz* 145 USPQ 347; *In re Liston* 58 USPQ 481; or *In re Porter* 20 USPQ 298)

The motivation to optimize the size of the first and second via is to form the desired patterns of the desired size on the substrate. Furthermore, it was held in *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), by the Federal Circuit that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. (Also see MPEP 2144.04 (d)) The first and second via

sized to that of the claimed invention, would be identical to the mask of the claimed invention.

The specific substrate (i.e. a flat display) on which the material is deposited is an intended use of the mask. The mask of Magdo et al is capable of depositing a material on a flat display.

The motivation for depositing material on a flat display is to form a flat display. Furthermore, it has been held that: claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danley*, 120 USPQ 528, 531, (CCPQ 1959); "Apparatus claims cover what a device is, not what a device does" (Emphasis in original) *Hewlett-Packard Co. V. Bausch & Lomb Inc.*, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990); and a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus " if the prior art apparatus teaches all the structural limitations of the claim *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). Also see MPEP 2114

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to form a single via 14 in each of the plurality of masks 10 of Magdo et al, optimize the sizes of the first and second vias, and use the mask of Magdo et al to deposit an element on a flat display.

3. Claims 10-15, 17, and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Magdo et al, US Patent 4,256,532, in view of Yoshizawa et al, US Patent 6,916,582 B2.

Magdo et al was discussed above.

Magdo et al differs from the present invention in that Magdo does not teach a third substrate, the size of the third vias, or the thickness of the third substrate.

Yoshizawa et al teaches a mask having a first substrate 42 with a plurality of first via holes 43 and a thickness of $0.1\mu\text{m}$ (about $1\mu\text{m}$); a second substrate 45 with a plurality of via holes 44 and thickness of $10.1\mu\text{m}$; a third substrate 47 with a plurality of via holes 46. The via holes are polygons and overlap each other. The third via holes are larger than the second via holes, and the second via holes are larger than the first via holes. The via holes have a difference in width ($W_2 - W_1$) of less than $1000\mu\text{m}$. (Entire document, specifically, Figure 4)

The motivation for adding a third substrate with overlapping via holes is to increase the mechanical strength of the mask, and to improve the uniformity of the layer deposited through the mask.

The motivation to optimize the size of the third via is to form the desired patterns of the desired size on the substrate. The motivation to optimize the thickness of the third substrate is to provide the required additional strength and provide the desired additional masking to optimize the mechanical strength of the mask and optimize the uniformity of the layer deposited through the mask. Furthermore, it was held in *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), by the Federal Circuit that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform

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differently than the prior art device, the claimed device was not patentably distinct from the prior art device. (Also see MPEP 2144.04 (d)) The vias and third substrate of Magdo et al and Yoshizawa et al, sized to that of the claimed invention, would be identical to the mask of the claimed invention.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the third substrate of Yoshizawa et al to the mask of Magdo et al, and optimize the size of the third via and the third substrate.

Response to Arguments

4. Applicant's arguments with respect to claims 1-6, 8, 10-15, 17, and 19-25 have been considered but are moot in view of the new grounds of rejection.

5. Applicant's arguments filed April 12, 2007 have been fully considered but they are not persuasive.

In regard to the argument:

Magdo discloses various embodiments of a separable silicon mask for use during an etching procedure in the fabrication of integrated circuits for a semiconductor device. For example, Magdo discloses in Figure 1 (referred to in the Office Action) a mask 10 including apertures 14 (compared in the Office Action to the recited first substrate and plurality of first via holes). The mask 10 is supported by a grid of support ribs 11 that define recesses 13 therebetween. Contrary to what is asserted in the Office Action, Applicant maintains the position that the support ribs 11 are not part of the mask 10, and, even if improperly considered a second substrate, the recesses 13 do not constitute holes formed in the structure of the support rib 11 itself. Thus, Applicant maintains the position that Magdo neither discloses nor suggests first and second substrates with first and second via holes respectively formed therein, as recited in independent claim 1.

The Examiner disagrees. First, Figures 1, 1A, and 2A-2E clearly show that the mask of Magdo et al is constructed of two substrates each with via holes. The first substrate 22 has a plurality of first vias holes 14, and a second substrate 20 having a larger via hole 13. The second substrate is used as supporting ribs, but the ribs are formed from a

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substrate and include a via hole 13, and thus read on the claimed invention. Second, figures 2A-2E clearly show that the second substrate is part of the mask.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

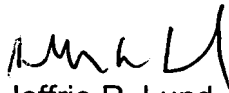
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (571) 272-1437. The examiner can normally be reached on Monday-Thursday (10:00 am - 9:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-

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273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jeffrie R. Lund
Primary Examiner
Art Unit 1763

JRL
7/7/07